Implementation of a Web Portal for Managing and Sharing Environmental Data

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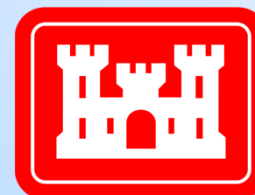
2011 DoD Environmental Monitoring & Data Quality Workshop
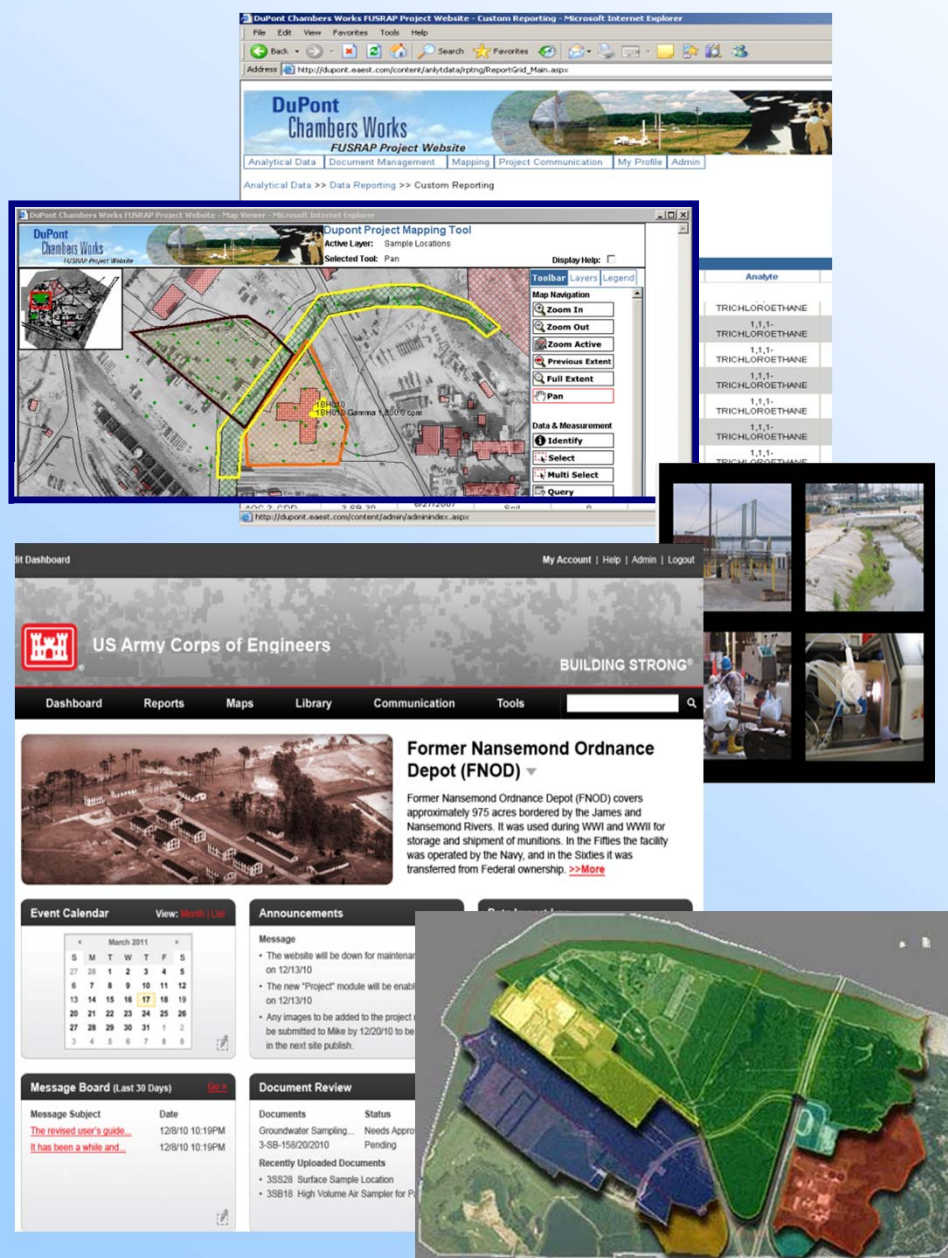
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Agenda

- Introduction

- USACE Philadelphia FUSRAP Web Portal

- USACE Baltimore Project Management Portal

- Questions

Introduction

- Environmental Restoration Programs
  - Generate a large volume of data to be analyzed
  - Technically and geographically diverse project teams

- Programs have associated challenges for managing information
  - Data Collection, Analysis & Reporting
  - Team Communication & Collaboration

- Technology can help solve these challenges
  - Centralized Web Portal
  - Discuss 2 Examples

USACE Philadelphia FUSRAP Web Portal

Background

- **DuPont Chambers Works FUSRAP Site**
  - Project Site in New Jersey with ongoing data collection

- **Diverse Project Team**
  - Multi-disciplinary technical team
  - Team members located across the country
  - Unique data analysis needs
  - Coordination of input from team members critical

DuPont Chambers Works FUSRAP Site

USACE Philadelphia FUSRAP Web Portal

Web Portal

- Implemented in 2004

- Centralized Project Management Portal

  - Environmental Data Reporting
  - Document Management
  - Mapping
  - Team Communication Tools

- Associated Public Outreach Website

  - Project Background
  - Public Meeting Announcements and Minutes

USACE Philadelphia FUSRAP Web Portal

Environmental Data Reporting

- Custom Reporting
  - Standardized Chemical Data
  - User-Defined Query Criteria

- Data Exporting
  - Export Data in Multiple Formats
  - Used in External Applications (MS Excel, MS Access)

- Standard Reports
  - Quickly Generate Report Ready Chemical Tables

USACE Philadelphia FUSRAP Web Portal

Document Management

- **Central Repository for Project Documentation**
  - Browse by hierarchical folder structure
  - Full text, keyword search

- **Facilitated Document Review**
  - Assign reviewers and track comments
  - Capture all comments and responses in central location
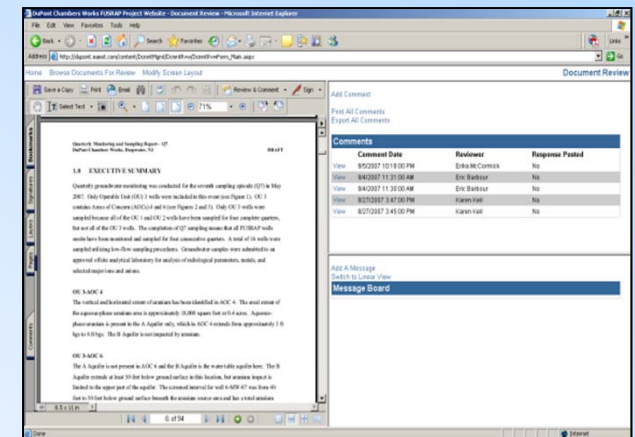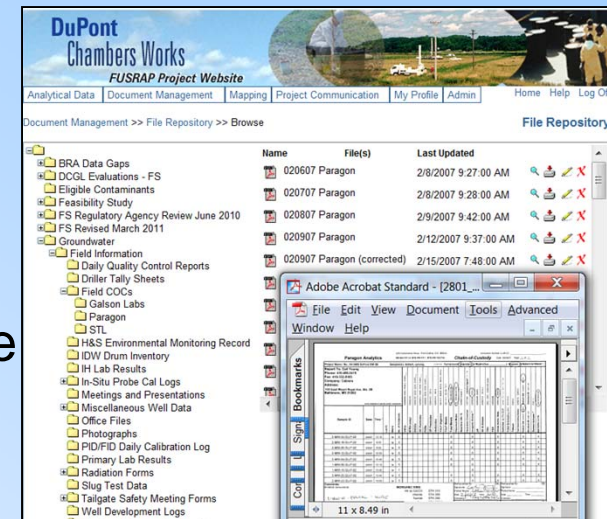
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Mapping

- **Basic Map Generation & Viewing**
  - User-Friendly Interface
  - No GIS Experience
  - Built on ESRI ArcIMS Technology

- **Basic Spatial Analysis**
  - Ability to Query & Display Chemical Data Results
  - Generate Maps Based on User Defined Criteria
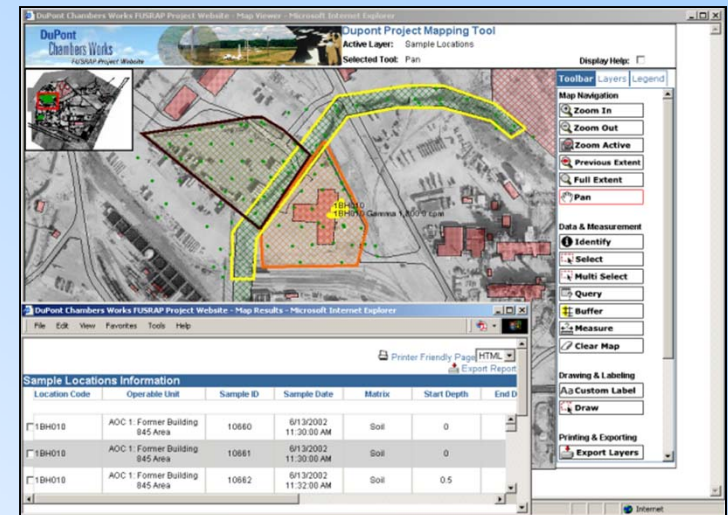
USACE Philadelphia FUSRAP Web Portal

Mapping (Cont.)

- **Figure Generation**
  - Generate printer-friendly PDF Figures
  - Multiple layouts and Figure/Paper Sizes

- **Team Collaboration**
  - Save custom maps for sharing with Team Members
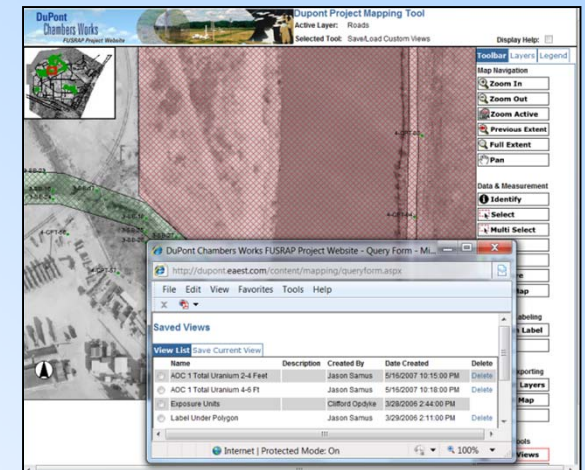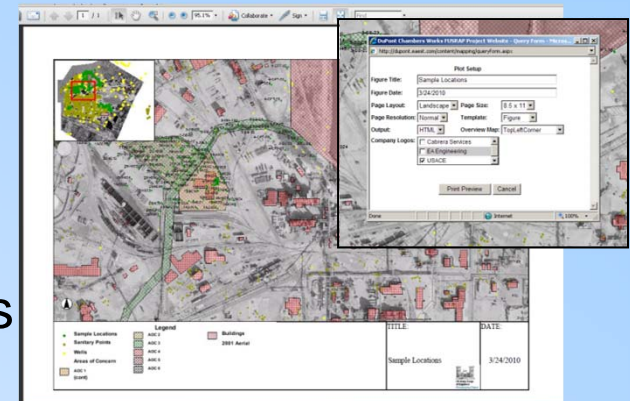
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Team Communication Tools

- ## Team Directory
  - Listing of All Team Members

- ## Message Board
  - Collaboration among Team Members on complex analysis, project reports and deliverables

- ## Calendar of Events
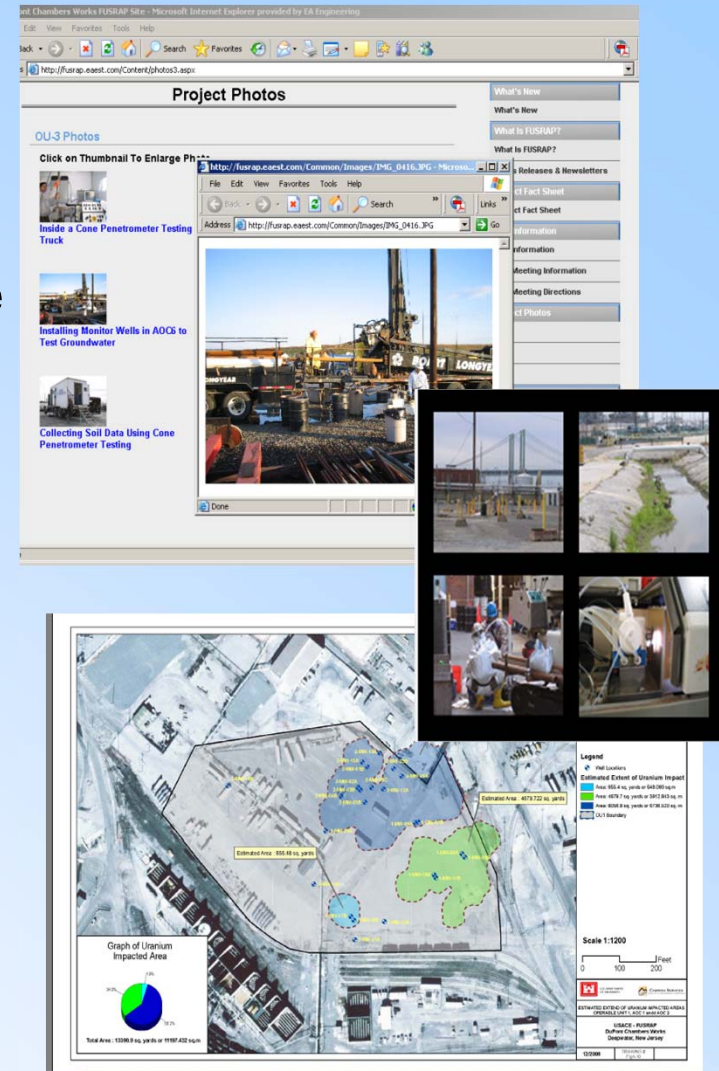 - All Project Events, Milestones captured on Project Calendar

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USACE Philadelphia FUSRAP Web Portal

Public Site

- Public Information Portal
  - Provides information intended for the general public
  - Project Background
  - Meeting Announcements & Minutes
  - Project Status
  - Project Photos

USACE Baltimore Project Management Portal

Background

- ## Two FUDS Program Sites

  - ### Former Nansemond Ordnance Depot NPL Site

    - 20 years of historical analytical data in varying formats (hard copy, pdf, Word, Excel and Access).

    - Approximately 320,000 rows of analytical data

    - 18 GB of GIS data consisting of base map, historical aerial imagery, digital elevation model data and contours.

    - Approximately 800 individual historical files, as well as, 100 working files in various formats (Word, Excel, PDF).

  - ### NASA Wallops Flight Facility

    - 18 years of historical analytical data in varying formats (hard copy, pdf, Word, Excel and Access)

    - Approximately 200,000 rows of analytical data

    - 12 GB of GIS data consisting of base map, historical aerial imagery, digital elevation model data and contours.

    - Approximately 400 individual historical files, as well as, 80 working files in various formats (Word, Excel, PDF).

USACE Baltimore Project Management Portal

Background

- ● Components

  - ■ Analytical Data Repository
    - ● Central database for all chemical, geological, and geophysical data

  - ■ File Repository
    - ● Documents, files and data of varying formats

  - ■ Mapping
    - ● Web-based GIS mapping for displaying environmental compliance information

  - ■ Document Review
    - ● Web-based document review to capture and track comments on reports and documents

USACE Baltimore Project Management Portal

Background

- Components (cont.)
  - Project Communication
    - Project team coordination and communication tools including a Message Board, Team Directory, Calendar of Events

  - Home Page Dashboard
    - Automatically updated to display the status of data and recent updates to information.

  - Admin Record File

  - Public Outreach Website
    - Public access to specific files and documents stored in the File Repository

USACE Baltimore Project Management Portal

Background

- Components (cont.)

    - Automated Email Notifications
        - Automated alerts and reminders sent to system users via email

    - Online Help
        - Easy to use online help including detailed instructions on the use of each module

    - System Administration
        - Ability to administer users, permissions and configurations

USACE Baltimore Project Management Portal

Background

- ● Additional Features

  - ▪ GMS - groundwater modeling
  - ▪ gINT - boring logs and well construction diagrams
  - ▪ Oasis Montaj Viewer - geophysical data

- ● Integration with existing USACE systems

  - ▪ FUDS Record Management System
  - ▪ CorpsMap
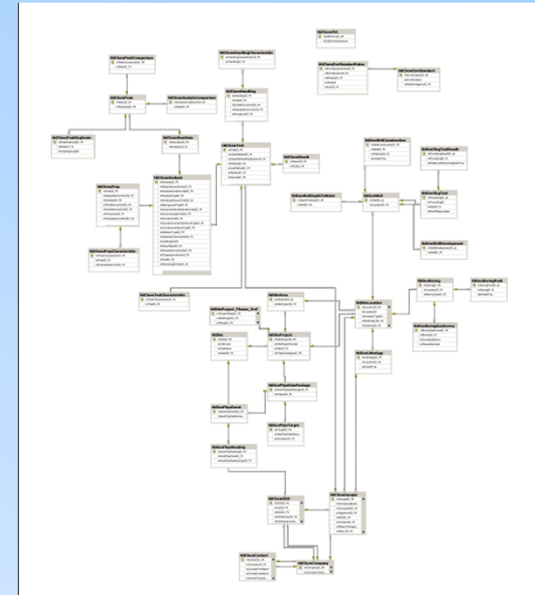
USACE Baltimore Project Management Portal

Web Portal

- **Similar needs to FUSRAP project team**
  - Central repository for data & documents

- **Building on FUSRAP Portal Functionality**
  - Document Repository, Communication Tools

- **Additional, Unique Needs**
  - Support multiple sites and projects
  - Robust data visualization and analysis
  - Expanded environmental data QA/QC and reporting
  - Integration with external tools
  - Expanded mapping capabilities

USACE Baltimore Project Management Portal

Environmental Data QA/QC

- **Standardized Data Structure**
  - Analytical Data - SEDD 5.2, Stage 2a/2b
  - Geologic and Geophysical data

- **EDD Import**
  - SEDD Stage 2a/2b, ADR.NET, GeoEDD
  - Perform standard checks – format, data types, etc.

- **Data QA/QC**
  - ADR.NET for Analytical Data
  - Custom for Geologic Data

USACE Baltimore Project Management Portal

Environmental Data Reporting

- **Custom & Standard Reporting**
    - Similar custom reporting for Analytical Data
    - Incorporate custom reporting for Geologic & Geophysical
    - Include a series of standard reports

- **Comparison to Environmental Standards**
    - Standards for 13 states and EPA

- **Trending & Graphing**
    - Ability to generate user-defined charts and graphs

USACE Baltimore Project Management Portal

Integration With External Tools

- **Provide Extended Functionality**
  - Seamless integration with the Portal

- **GMS**
  - 2D, 3D, flow modeling and visualization

- **gINT**
  - Bore Logs, Well Construction Diagrams

- **Montaj Viewer**
  - Additional mapping, analysis and visualization functionality

USACE Baltimore Project Management Portal

Expanded Mapping Capabilities

- **ArcGIS Server Platform**
    - Industry Standard GIS Platform
    - Robust Spatial Visualization & Analysis

- **Remote Data Editing**
    - Ability to utilize sophisticated, desktop based GIS software to manage & analyze data

- **Simplified User Interface**
    - User-friendly web interface designed for non-GIS users

USACE Baltimore Project Management Portal

Integrated Public Facing Website

- Standardized Website Implementation
  - Site Specific Website(s)
  - Dynamically generated through Web Portal
  - Site/Project Background, Documents, Photos, etc.

- Data Automatically Available
  - Linked to portal data and documents "flagged" for public viewing
  - Easy/Low maintenance; Dynamic content automatically included/removed

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USACE Baltimore Project Management Portal

Other Features

- ## Dashboard
  - Site specific dashboard
  - Recent & important data summarized for quick access

- ## Future Integration with Existing USACE Systems
  - Designed for future integration to streamline data maintenance
  - FUDS Record Management System, CorpsMap
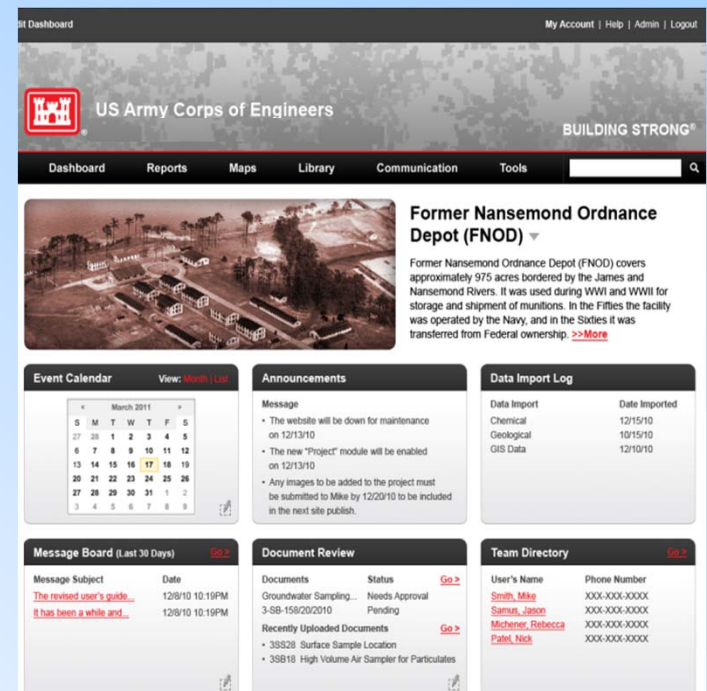
Summary

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Questions ?